UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,385	07/29/2003	Soroush Ghanbari	1906-0119P	3942

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ART UNIT	PAPER NUMBER
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NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/628,385	GHANBARI ET AL.
	Examiner	Art Unit	
	Tung Vo	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 December 2007*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07/29/03* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Chan (US

6,865,227).

Re claim 1, Chan discloses an apparatus for carrying out a method of approximating a

motion vector (figs. 1A-1C and 5) for an image block for concealment of lost or damaged motion

vector (100-102 of fig. 1A) comprising:

deriving a first set of vectors from motion vectors of neighboring blocks in the same

frame and the corresponding block and its neighboring blocks in one or more preceding and/or

subsequent frames (108-118 of figs. 1A and 1B, wherein first MV candidate set is stored; K*best*

decoded MVs; 110 and 118 of figs. 1A and 1B, 506 of fig. 5, motion compensated temporal

replacement may be an appropriate error concealment technique in video frames without much

scene changes. This technique uses motion information to propagate macroblocks from the

previous frame to replace the corrupted macroblocks in the current frame,   neighboring blocks

of the current and previous frames are estimated, see figs. 3 and 4)),

deriving a set of candidate vectors from one or more of motion vectors of neighboring

blocks in the same frame and the corresponding block and its neighboring blocks in one or more

preceding and/or subsequent frames (122-130 of figs. 1B and 1C; col. 1, 40-60, the second set of

remaining motion vectors, N-K$_{best}$ estimated MVs; col. 2, lines 42-62, 506 of fig. 5),

analyzing said first set of vectors (510 of fig. 1), and selecting one of the candidate

vectors on the basis of the analysis, wherein the steps of analysis and selecting involves

comparison of motion vectors to determine similarity of motion (512 of fig. 5, see also figs. 1A-

1C; col. 1, lines 58-60, Sets of motion vectors that produce a best image smoothness measure of

the texture data are selected from the first and second sets, so the selection is based on a

comparison between first and second sets, Kbest decoded MVs and N-Kbest estimated MVs, this

is the same selection of the invention,[0010]"comparing the candidate vectors with the estimated

motion vector and selecting one of the candidate vectors on the basis of similarity to said

estimated vector").

Re claim 2, Chan further discloses comparing candidate vectors with a vector or vectors

selected or derived from the first set of vectors (510 of fig. 5).

Re claim 3, Chan further disclose wherein the first set of vectors and the set of candidate

vectors are the same (122 of fig. 1B).

Re claim 4, Chan further discloses deriving an estimated motion vector from the first set

of vectors, comparing the candidate vectors with the estimated motion vector and selecting one

of the candidate vectors on the basis of similarity to said estimated vector (506 of fig. 5).

Re claim 5, Chan further discloses wherein the similarity to the estimated vector is

defined in terms of distance and/or size and/or direction (reverse directions, 120 of fig. 1B).

Re claim 6, Chan further discloses wherein the vector that is closest or second closest to the estimated vector is selected (510 of fig. 5).

Re claim 7, Chan further discloses wherein the estimated motion vector is the mean of two or more or all of the elements of said first set (fig. 3).

Re claim 8, Chan further discloses wherein the mean is a weighted mean (col. 3, lines 43-45).

Re claim 9, Chan further disclose wherein motion vectors of neighboring blocks are weighted according to their position in relation to said image block and/or their similarity to the motion vector of the block corresponding to said image block in the preceding or subsequent frame (col. 3, lines 36-49).

Re claim 10, Chan further discloses wherein the selection takes into account motion boundaries (col. 3, lines 59-64).

Re claim 11, Chan further discloses wherein said analysis comprises comparing the motion vectors of neighboring image blocks in the same frame with the corresponding motion vectors in the preceding or subsequent frame, and determining the approximation of motion vector according to the results of the comparison (col. 4, lines 17-57).

Re claim 12, Chan further discloses the motion vector using the motion vector of the corresponding block in the preceding or subsequent frame when said comparison indicates a high correlation between the neighbouring motion vectors in the preceding or subsequent frame (fig. 3, Note the boundary smoothness is measured by summing the pixel value mismatch between the current frame and the motion compensated previous frame).

Re claim 13, Chan further discloses the motion vector using motion vectors for neighbouring blocks in the same frame when said comparison indicates a low correlation between frames (fig. 4, pixels). \

Re claim 14, Chan further discloses the motion vector using motion vectors from neighbouring blocks in the same frame and motion vectors in the preceding or subsequent frame (110 and 124 of figs. 1A and 1B, 506 of fig. 5) .

Re claim 14, Chan further disclose approximating the motion vector using motion vectors from neighboring blocks in the same frame and motion vectors in the preceding or subsequent frame (fig. 3).

Re claim 17, Chan further discloses an apparatus adapted to execute a method as claimed in claim 1 (fig. 5).

Re claim 18, Chan further discloses a data decoding means, error detecting means, a motion vector estimator and error concealing means (fig. 5).

Re claim 19, Chan further a receiver for a communication system or a system for retrieving stored data comprising an apparatus (fig. 5).

3.   Claims 1-7, 10-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin (US 6,700,934).

Re claim 1, Lin teaches a method of approximating a motion vector for an image block for concealment of a lost or damaged motion vector (fig. 8), comprising the steps of: deriving a first set of vectors from motion vectors of neighbouring blocks in the same frame and the corresponding block and its neighbouring btocks in one or more preceding and/or subsequent

frames (40 and 42 of fig. 8); deriving a set of candidate vectors from one or more of motion

vectors of neighbouring blocks in the same frame and the corresponding block and its

neighbouring blocks in one or more preceding and/or subsequent frames (40 and 42 of fig. 8);

analyzing said first set of vectors (45 of fig. 8), and selecting one of the candidate vectors on the

basis of the analysis (50 of fig. 8, reading pair motion vectors), wherein the steps of analyzing

and selecting involves comparison of motion vectors to determine similarity of motion (50 and

52 of fig. 8).

Re claim 2, Lin further discloses comparing candidate vectors with a vector or vectors

selected or derived from the first set of vectors (50-54 of fig. 8).

Re claim 3, Lin further discloses wherein the first set of vectors and the set of candidate

vectors are the same (fig. 6).

Re claim 4, Lin further discloses deriving an estimated motion vector from the first set of

vectors, comparing the candidate vectors with the estimated motion vector and selecting one of

the candidate vectors on the basis of similarity to said estimated vector (52-56 of fig. 8).

Re claim 5, Lin further discloses wherein the similarity to the estimated vector is defined

in terms of distance and/or size and/or direction (50 of fig. 8).

Re claim 6, Lin further discloses wherein the vector that is closest or second closest to the

estimated vector is selected (Pair of motion vectors are read out).

Re claim 7, Lin further discloses wherein the estimated motion vector is the mean of two

or more or all of the elements of said first set (MV1-MV4 of fig. 8).

Re claim 10, Lin further discloses wherein the selection takes into account motion

boundaries (fig. 6).

Re claims 11 and 13, Lin further discloses said analysis comprises comparing the motion

vectors of neighbouring image blocks in the same frame with the corresponding motion vectors

in the preceding or subsequent frame, and determining the approximation of motion vector

according to the results of the comparison (fig. 6).

Re claim 13, Lin further discloses approximating the motion vector using motion vectors

for neighbouring blocks in the same frame when said comparison indicates a low correlation

between frames (fig. 5).

Re claim 14, Lin further discloses comprising approximating the motion vector using

motion vectors from neighbouring blocks in the same frame and motion vectors in the preceding

or subsequent frame (fig. 6).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chan (US

6,865,227) in view of Lainema (US 6,782,053).

Re claim 20, Chan does not disclose a receiver is a mobile videophone. However,

Lainema teaches a receiver is a mobile video phone (fig. 1). Therefore, one skill in the art would

obviously combine the teachings of Lainema and Chan to implement into a mobile phone.

Doing so would provide an improved method for coding video frames, an improved video coder

and an improved subscriber terminal.

Response to Arguments

6.   Applicant's arguments filed 12/10/2008 have been fully considered but they are not

persuasive..

        The applicant argues that Chan does not anticipate "deriving a set of candidate vectors

from one or more of motion vectors of neighboring blocks in the same frame, and the

corresponding block and its neighboring blocks in one or more preceding and/or subsequent

frames"; "analyzing said ... vectors", and "selecting one of the candidate vectors on the basis of

the analysis, wherein analyzing and selecting involves comparison of motion vectors to

determine similarity of motion", in the remarks.

        The examiner respectfully disagrees with the applicant. It is submitted that Chan

discloses deriving a set of candidate vectors from one or more of motion vectors of neighboring

blocks in the same frame, and the corresponding block and its neighboring blocks in one or more

preceding (figs. 3 and 4) and/or subsequent frames (col. 1, lines 30-33, motion information

between current and previous frames, wherein motion vectors can be calculated in the same

frame (figs 3 and 4), 506 of fig. 5, 108, 110, and 118 of figs. 1A and 1B); analyzing said first set

of vectors (510 of fig. 1), and selecting one of the candidate vectors on the basis of the analysis,

wherein the steps of analysis and selecting involves comparison of motion vectors to determine

similarity of motion (512 of fig. 5, see also figs. 1A-1C; col. 1, lines 58-60, Sets of motion

vectors that produce a best image smoothness measure of the texture data are selected from the

first and second sets, so the selection is based on a comparison between first and second sets, Kbest decoded MVs and N-Kbest estimated MVs, this is the same selection of the invention,[0010]"comparing the candidate vectors with the estimated motion vector and selecting one of the candidate vectors on the basis of similarity to said estimated vector").

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.
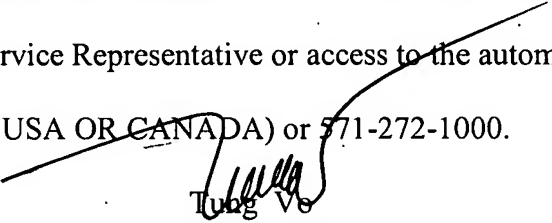
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tung Vo

Primary Examiner
Art Unit 2621